TRPC Channels and Mental Disorders.

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Authors: Karina Griesi-Oliveira, Angela May Suzuki, Alysson Renato Muotri

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Public Summary:
This review was based on new scientific information linking mutation in a class of genes called TRPC to several neurological disorders. We critically discussed the evidence and points to necessary future research that might bring a new class of therapeutic targets for these disorders.

Scientific Abstract:
Transient receptor potential canonical (TRPC) channels mediate the influx of different types of cations through the cell membrane and are involved in many functions of the organism. Evidences of involvement of TRPC channels in neuronal development suggest that this family of proteins might play a role in certain neurological disorders. As reported, knockout mice for different TRPC channels show alterations in neuronal morphological and functional parameters, with behavioral abnormalities, such as in exploratory and social behaviors. Although mutations in TRPC channels could be related to mental/neurological disorders, there are only a few cases reported in literature, indicating that this correlation should be further explored. Nonetheless, other functional evidences support the implication of these channels in neurological diseases. In this chapter, we summarize the main findings relating TRPC channels to neurological disorders, such as autism spectrum disorders, bipolar disorder, and intellectual disability among others.